



State of Washington
Department of
Labor and Industries

PROVIDER BULLETIN

Published by Health Services Analysis Section • Olympia, Washington 98504-4322

94-12

THIS ISSUE

Revised Rules for the Evaluation of Respiratory Impairment

TO:

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In an effort to establish more certainty and uniformity in the evaluation of permanent respiratory impairment, the department has adopted a change to the Washington Administrative Codes (WACs). This rule change will take effect March 1, 1994.

Developed at the request of the medical community, the new rules specify which respiratory function tests can be used to evaluate and measure permanent impairment for workers with respiratory diseases attributed to exposures on the job. A separate category rating system is created for people who have normal respiratory function until they are exposed to certain allergens or irritants.

These changes were the subject of a public hearing held on November 23, 1993.

For those claims with a date of injury on or after March 1, 1994, physicians must use the new category systems for rating permanent respiratory impairment and persisting variable respiratory impairment with normal baseline spirometry (e.g. occupational asthma).

Please see the full text of the WACs included in this bulletin for a complete description of the revised impairment rating process.

WAC 296-20-370 Respiratory impairments includes definitions of key terms used in the evaluation process, testing and reporting standards, and rules for the evaluation of impairment.

WAC 296-20-380 Categories of permanent respiratory impairment ranks impairment according to the quantitative results of the FVC, FEV1, and exercise testing/maximum oxygen consumption.

WAC 296-20-385 Categories of persisting variable respiratory impairment with normal baseline spirometry establishes a separate rating system for workers with normal baseline function. Impairment is rated by the results of the appropriate provocative bronchial challenge test.

HIGHLIGHTS OF THE EVALUATION PROCESS

Refer to WAC 296-20-370(b) for a complete description

- **The rating of respiratory impairment** shall be based on the pulmonary function test most appropriate to the respiratory condition. A

prebronchodilator and postbronchodilator test must be performed on all patients with demonstrated airway obstruction. The *largest* FEV1 or FVC, on either the prebronchodilator or postbronchodilator trial, must be used for rating the impairment. If the FEV1 and FEV1/FVC result in different categories of impairment, the value resulting in a higher category of impairment will be used.

- **Persisting variable respiratory impairment with abnormal baseline function** is rated according to the category system described in WAC 296-20-380. When resting FEV1 is “abnormal” and shows significant bronchodilator improvement, one category of impairment must be added to the given category rating, but only when the work-related disease is obstructive in nature.
- **Persisting variable respiratory impairment with normal baseline spirometry** is rated according to the category system described in WAC 296-20-385.

REVISED RESPIRATORY IMPAIRMENT RULES

WAC 296-20-370 Respiratory impairments. (1) Rules for evaluation of permanent respiratory impairments: (a) Definitions.

(i) “FEV1” means the forced expiratory volume in 1 second as measured by a spirometric test performed as described in the most current *American Thoracic Society Statement on Standardization of Spirometry*, and using equipment, methods of calibration, and techniques that meet American Thoracic Society (ATS) criteria including reproducibility. The measurement used must be taken from a spirogram which is technically acceptable and represents the patient’s best effort. The measurement is to be expressed as both an absolute value and as a percentage of the predicted value. The predicted values are those listed in the most current edition of the *American Medical Association (AMA) Guidelines* for rating permanent respiratory impairment.

(ii) “FVC” means the forced vital capacity as measured by a spirometric test in accordance with criteria described in (a)(i) of this subsection.

(iii) “FEV1/FVC” is a ratio calculated based on the ATS Guides criteria as described in the most current *American Thoracic Society Statement on Standardization of Spirometry*..

(iv) “Significant improvement” means a fifteen percent or greater improvement in FEV1 (volume) after a post-bronchodilator pulmonary function test.

(v) “DLCO” means the diffusion capacity of carbon monoxide as measured by a test based on predicted values demonstrated to be appropriate to the techniques and equipment of the laboratory performing the test according to current ATS standards. DLCO may be considered for impairment rating only if accompanied by evidence of impaired gas exchange based on exercise testing.

(vi) “V02 Max” means the directly measured oxygen consumption at maximum exercise capacity of an individual as measured by exercise testing and oxygen consumption expressed in ml/kilo/min corrected for lean bodyweight. Estimated values from treadmill or other exercise tests without direct measurement are not acceptable. The factor limiting the exercise must be identified.

(vii) “Preexisting impairment” shall be reported as described in WAC 296-20-220 (l)(h).

(viii) “Coexisting” is a disease or injury not due to or causally related to the work-related condition that impacts the overall respiratory disability.

(ix) “Apportionment” is an estimate of the degree of impairment due to the occupational injury/exposure when preexisting or coexisting conditions are present.

(x) “Dyspnea” is the subjective complaint of shortness of breath. Dyspnea alone must not be used to determine the level of respiratory impairment. Dyspnea unexplained by objective signs of impairment or spirometry requires more extensive testing (i.e., V02 Max).

(xi) Copies of the *American Thoracic Society Statement on Standardization of Spirometry* and ATS standards for measuring $D_{L_{CO}}$ can be obtained by ordering *Pulmonary Function Testing* from The American Thoracic Society, 1740 Broadway, New York, NY 10019-4374, Attn: ATS Statements. Copies of this document are available for review in the section of the office of the medical director, department of labor and industries, Tumwater building.

These standards are also available through the following references: “American Thoracic Society Committee on Proficiency Standards for Pulmonary Function Laboratories: Standardization of spirometry-1987 update.” *Am Rev Respir Dis* 1987; 136:1285-1298.

“American Thoracic Society D₁₀₀, Standardization Conference: Single breath carbon monoxide diffusing capacity (transfer factor): Recommendations for a standard technique.” *Am Rev Respir Dis* 1987; 136:1299-1307.

(b) Evaluation procedures. Each report of examination must include the following, at a minimum:

(i) Identification data: Worker’s name, claim number, gender, age, and race.

(ii) Detailed occupational history: Job titles of all jobs held since employment began. A detailed description of typical job duties, protective equipment worn, engineering controls present (e.g., ventilation) as well as the specific exposures and intensity (frequency and duration) of exposures. More detail is required for jobs involving potential exposure to known respiratory hazards.

(iii) History of the present illness: Chief complaint and description of all respiratory symptoms present (e.g., wheezing, cough, phlegm, chest pain, paroxysmal nocturnal dyspnea, dyspnea at rest and on exertion) as well as the approximate date of onset, and duration of each symptom, and aggravating and relieving factors.

(iv) Past medical history: Past history of childhood or adult respiratory illness, hay fever, asthma, bronchitis, chest injury, chest surgery, respiratory infections, cardiac problems, hospitalizations for chest or breathing problems and current medications.

(v) Lifestyle and environmental exposures: Descriptive history of exposures clinically related to respiratory disease including, but not limited to, tobacco use with type and years smoked. Use of wood as a primary heat source at home or hobbies that involve potential exposure to known respiratory tract hazards, and other environmental exposures.

(vi) Family history: Family history of respiratory or cardiac disease.

(vii) Physical examination findings: Vital signs including a measured height without shoes, weight, and blood pressure. Chest exam shall include a description of the shape, breathing, breath sounds, cardiac exam, and condition of extremities (e.g., cyanosis, clubbing, or edema).

(viii) Diagnostic tests: A chest x-ray shall be obtained in all cases. When available, the x-ray should be obtained using International Labor Organization (ILO) standard techniques and interpreted using the ILO classification system. The presence or absence of pleural thickening or interstitial abnormalities shall be noted. Pulmonary function reports including a description of equipment used, method of calibration, and the predicted values used. A hard copy of all pulmonary function tracings must be available for review. The report must contain at a minimum FEV1 and FVC and a narrative summary of an interpretation of the test results and their validity.

(ix) The rating of respiratory impairment. The rating of respiratory impairment shall be based on the pulmonary function test most appropriate to the respiratory condition. A prebronchodilator and postbronchodilator test must be performed on and results reported for all patients with demonstrated airway obstruction. The largest FEV1 or FVC, on either the prebronchodilator or postbronchodilator trial must be used for rating the impairment. If the FEV1 and FEV1/FVC result in different categories of impairment, the value resulting in a higher category of impairment will be used.

(x) The rating of persisting variable respiratory impairment with abnormal baseline function. If resting FEV1 is “abnormal” (below eighty percent predicted) and shows significant bronchodilator improvement (a greater than or equal to fifteen percent improvement in FEV1) one category of impairment must be added to the given category rating, but only when the

work-related disease being rated is obstructive in nature. If there is substantial variability from test to test (and good effort), the severity of impairment may be rated, using the best fit into the category system, as described in WAC 296-20-380.

(xi) The rating of persisting variable respiratory impairment with normal baseline spirometry. Variable respiratory impairment due to allergic or irritative disorder of the respiratory tract, such as bronchial asthma or reactive airway disease, caused or permanently aggravated by factors in the work place, shall be evaluated by detailed narrative report, including the casual relationship to work factors, a discussion of the relative importance of nonwork related cofactors, such as preexisting asthma, tobacco usage, or other personal habits, the need for regular medication to substantially improve or control the respiratory condition, and the prognosis. When tests of ventilatory function, done when the patient is in clinical steady state, are normal (one second forced expiratory volume eighty percent or greater of predicted), an appropriate provocative bronchial challenge test (i.e., methacholine or histamine) shall be done to demonstrate the presence of unusual respiratory sensitivity.

(xii) At the time of the rating, the patient shall be off theophylline for at least twenty-four hours, beta agonists for at least twelve hours, and oral and/or inhaled steroids or cromolyn for at least two weeks, in order to determine severity of air-flow obstruction, unattenuated by therapy. If withdrawal of medication would produce a hazardous or life threatening condition, then the impairment cannot be rated at this time, and the physician must provide a statement describing the patient's condition and the effect of medication withdrawal.

(xiii) The method for standardizing provocative bronchial challenge testing, using either histamine or methacholine, shall be used. The test drug may be given either by continuous tidal volume inhalation of known concentrations, using an updraft nebulizer, for two minutes, or by the technique of intermittent deep breaths of increasing test drug strengths either via a Rosenthal dosimeter or updraft nebulizer, and the results shall be expressed either as the mg/ml concentration of test drug, or the cumulative breath units (1 breath of a 1 mg/ml solution equals one breath unit) which result in a prompt and sustained (at least three minute) fall in the FEV1, greater than twenty percent below baseline FEV1. Medications that can blunt the effect of bronchoprovocation testing shall be withheld prior to testing. Once testing is complete, the results shall be expressed in terms of normal, mild, moderate, or marked bronchial reactivity, as described in WAC 296-20-385.

If multiple bronchoprovocative inhalation challenge tests have been done, the examining physician shall select the one category (normal, mild, moderate, or marked) which most accurately indicates the overall degree of permanent impairment at the time of rating.

If the results of serial pulmonary function testing are extremely variable and the clinical course and use of medication also indicate major impairment, then the physician must make a statement in the formulation and medical evaluation containing, at a minimum: Diagnosis and whether work related or nonwork related; nature and frequency of treatment; stability of condition and work limitations; impairment.

(xiv) Further treatment needs. In all cases, the examining physician shall indicate whether further treatment is indicated and the nature, type, frequency, and duration of treatment recommended.

WAC 296-20-380 Categories of permanent respiratory impairments. (1) The FVC and FEV1 are greater than or equal to eighty percent of predicted normal for the person's age, gender, and height. The FEV1/FVC ratio is greater than or equal to .70. Subjective complaints may be present or absent. If exercise testing is done, the maximum oxygen consumption is greater than 25cc/kilo/min. ?.

(2) The FVC or FEV1 is from seventy to seventy-nine percent of predicted, and if obstruction is present, the FEV1/FVC ratio is .60 - .69. If exercise testing is done, the maximum oxygen consumption is 22.5-25cc/kilo/min.

(3) The FVC or FEV1 is from sixty to sixty-nine percent of predicted, and if obstruction is present, the FEV1/FVC ratio is .60 - .69. If exercise testing is done, the maximum oxygen consumption is 20-22.4cc/kilo/min.

(4) The FVC or FEV1 is from fifty-one to fifty-nine percent of predicted. The FEV1/FVC ratio is .51 - .59. If exercise testing is done, the maximum oxygen consumption is 17.5-19.9cc/kilo/min.

(5) FVC from fifty-one to fifty-nine percent of predicted, or the FEV1 from forty-one to fifty percent of predicted, and if obstruction is present, the FEV1/FVC ratio is .41 - .50. If exercise testing is done, the maximum oxygen consumption is 15-17.4cc/kilo/min.

(6) The FVC is equal to or less than fifty percent of predicted or the FEV1 is equal to or less than forty percent of predicted. The FEV1/FVC ratio is equal to or less than .40. If exercise testing is done, the maximum oxygen consumption is less than 15cc/kilo/min.

WAC 296-20-385 Categories of persisting variable respiratory impairment with normal baseline spirometry. (1) "Normal" bronchial reactivity is demonstrated by an insignificant (less than twenty percent) fall from baseline FEV1 at test doses of histamine or methacholine, up to 16 mg/ml (continuous inhalation method) or up to 160 breath units (cumulative, repeated deep breath technique).

(2) "Mild" bronchial hyperactivity (BHR) is a significant (equal to or greater than twenty percent) fall in the FEV1 at test doses of 2.1-16 mg/ml, or 21-160 breath units.

(3) "Moderate" BHR is a significant (equal to or greater than twenty percent) fall in the FEV1 at test doses of 0.26-2 mg/ml, or 2.6-20 breath units.

(4) "Marked" BHR is a significant (equal to or greater than twenty percent) fall in the FEV1 at test doses equal to or less than .25 mg/ml, or 2.5 breath units.

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